Institut Teknologi Sepuluh Nopember

Department of Information Systems
Subject : Requirement Engineering

Introduction to
Requirement Engineering

IS184309, 3 sks

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Outline

- Why requirement is important?
- What is requirement engineering?
- Course Plan (RP-Rencana Perkuliahan)
- Assignments and Marking

WHY REQUIREMENT ?

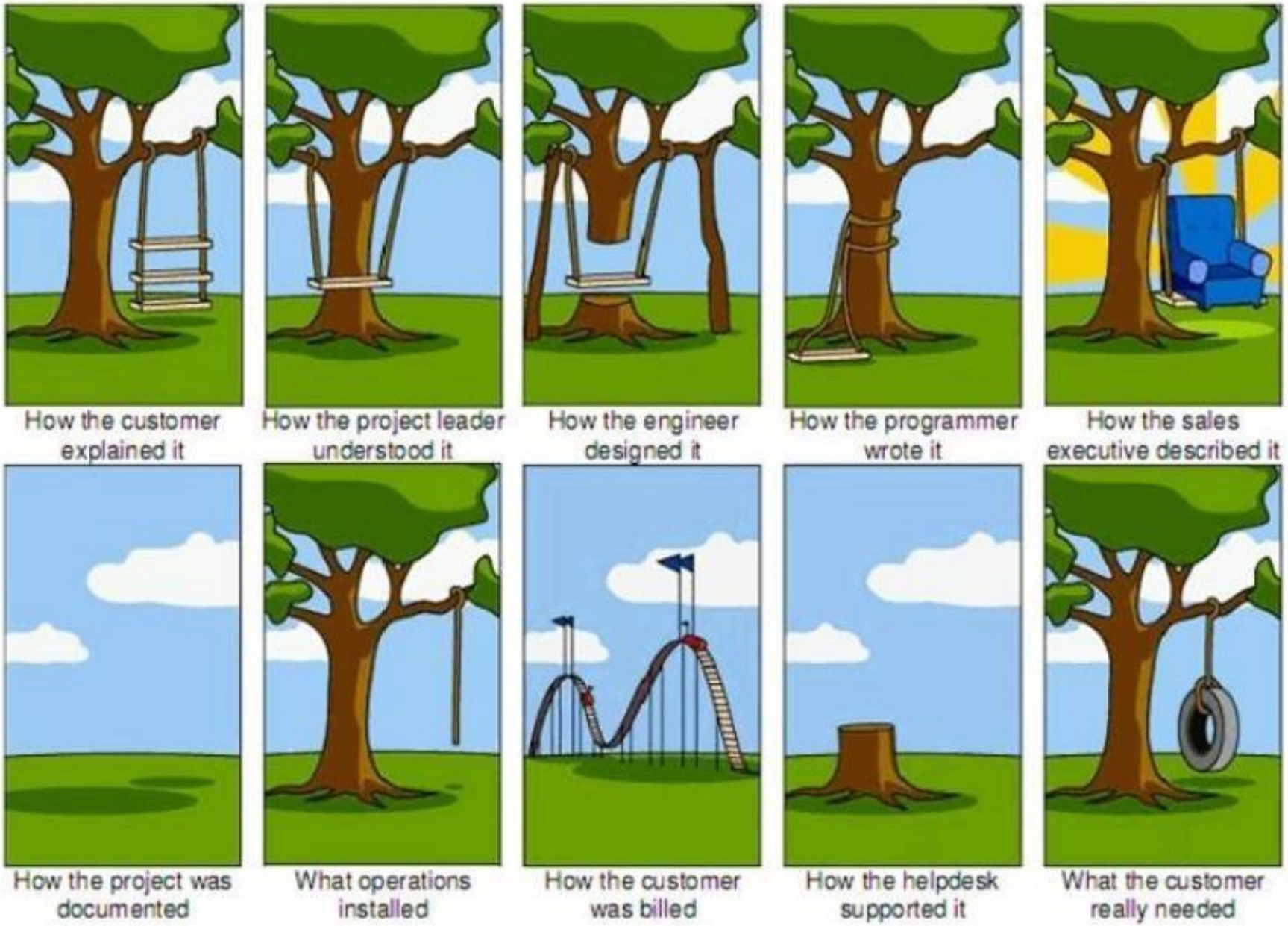
Simple things should be simple, complex things should be possible.

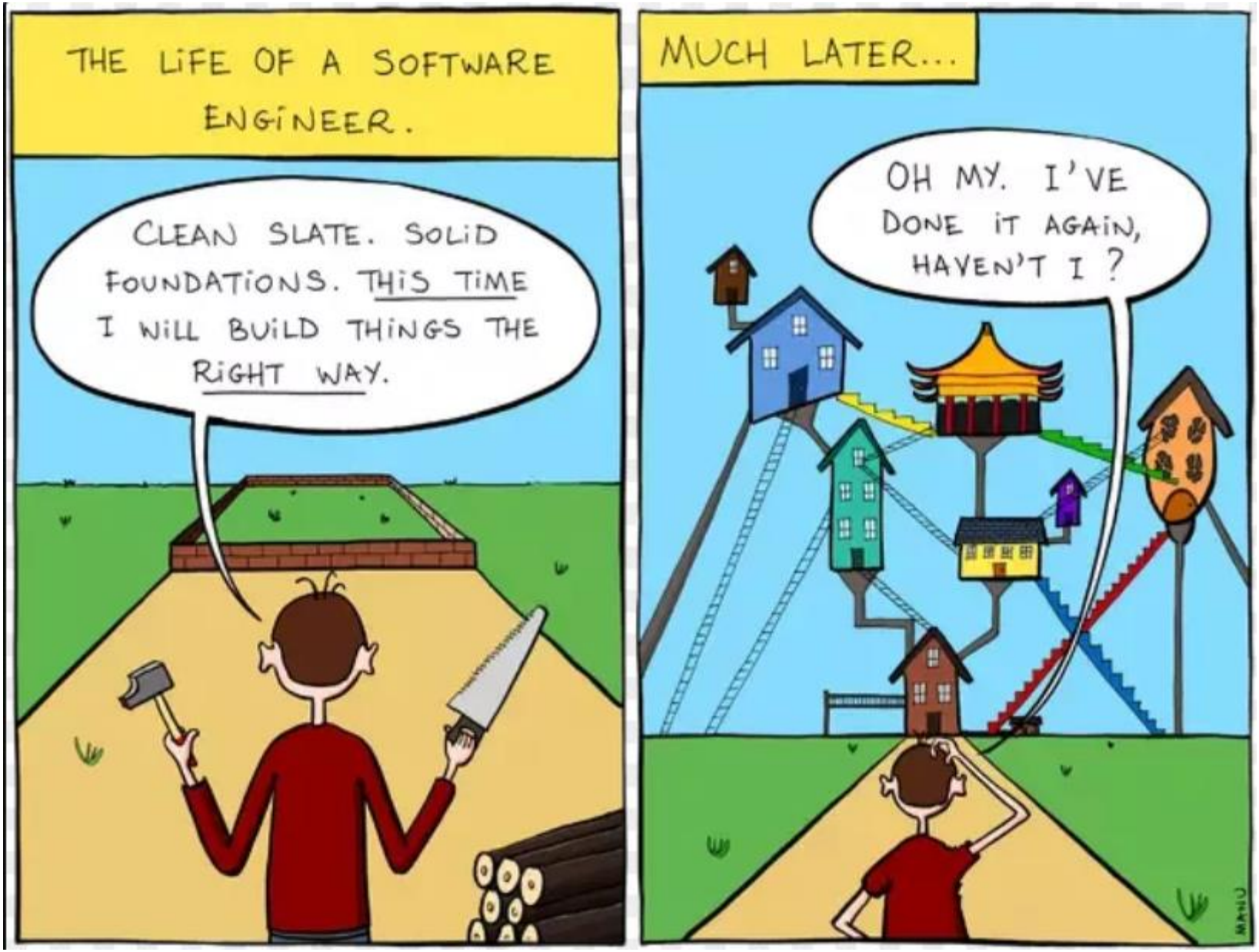
--The Wiki Way: Quick Collaboration on the Web, Bo Leuf, Ward Cunningham

The most important single aspect of software development is to be clear about what you are trying to build.

--*Bjarne Stroustrup*

"How projects really work" cartoon - YouTube

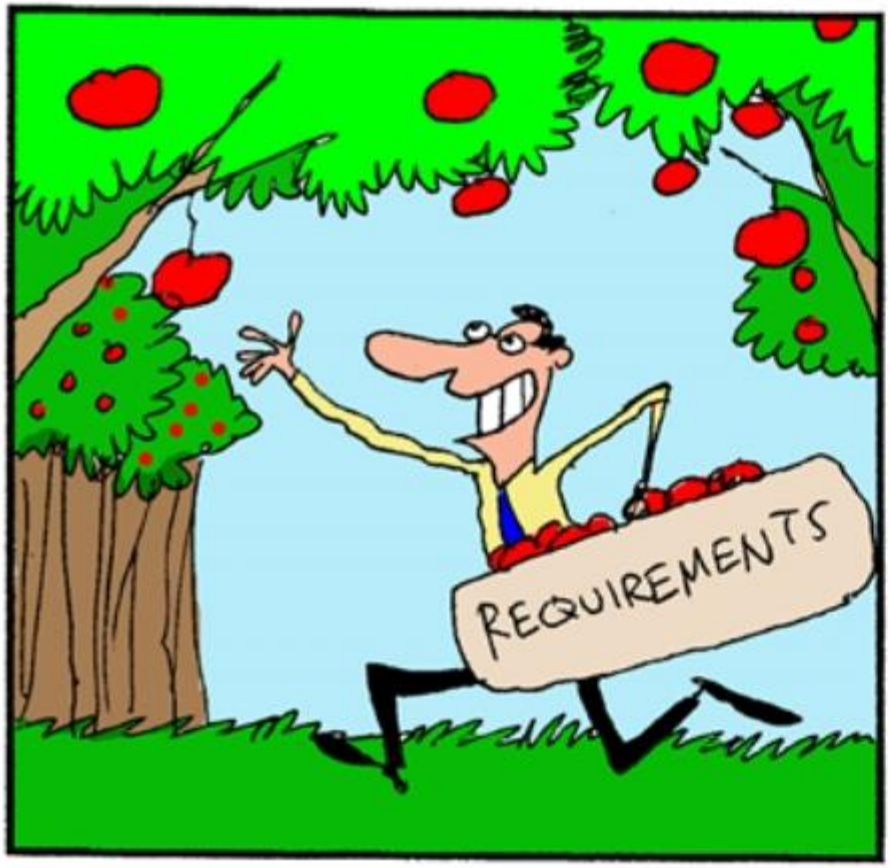



THE LIFE OF A SOFTWARE ENGINEER.
CLEAN SLATE. SOLID FOUNDATIONS. THIS TIME I WILL BUILD THINGS THE RIGHT WAY.
MUCH LATER...
OH MY. I'VE DONE IT AGAIN, HAVEN'T I ?
MANU

"I'll go talk to the stakeholders and find out their requirements... in the meantime, you guys start coding."

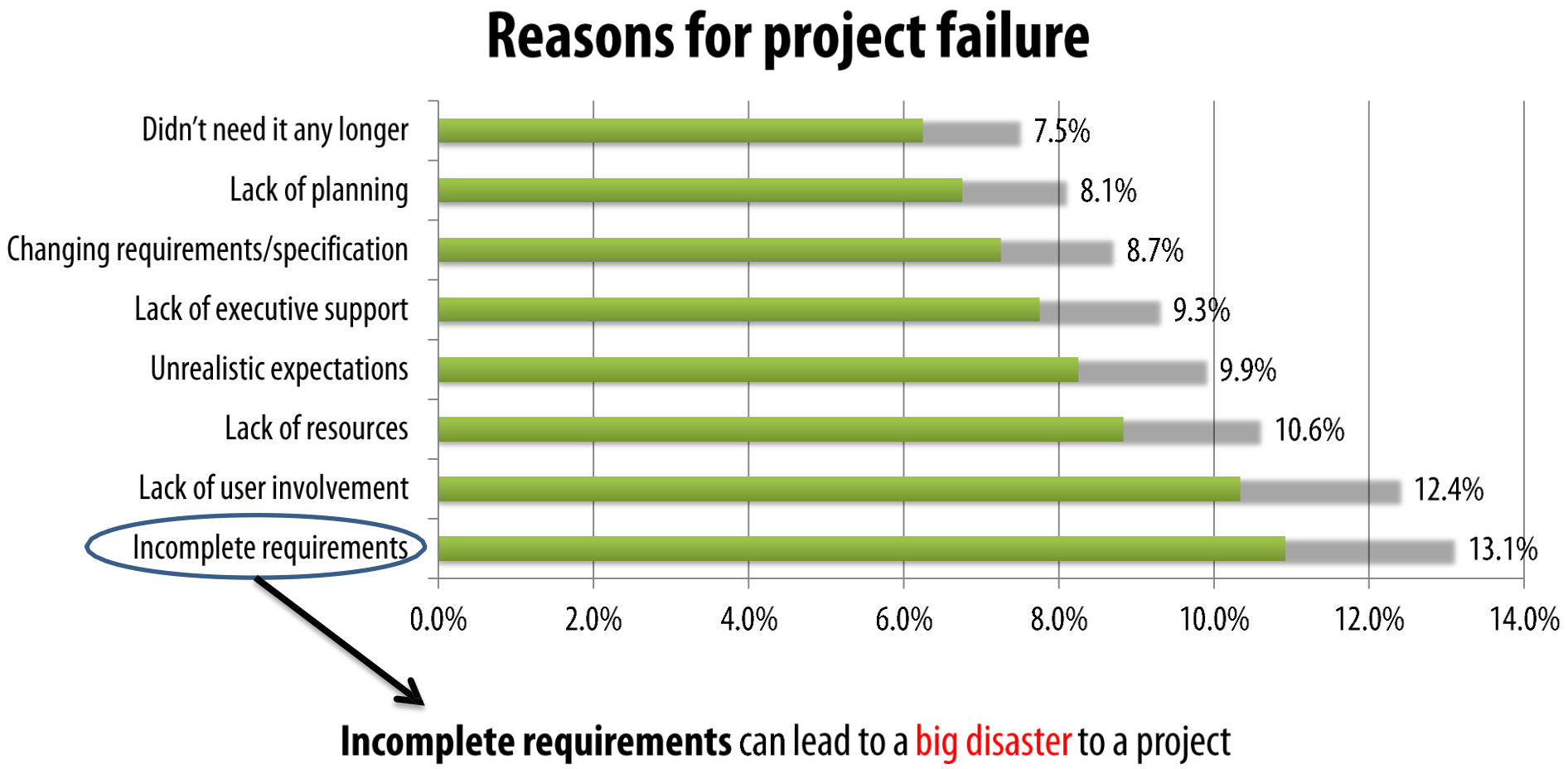
"The client kept changing the requirements on a daily basis, so we decided to freeze them until the next release."

How stakeholders think requirement gathering works.



How requirement gathering really works.

Why requirement is important? (2)



Incomplete requirements can lead to a big disaster to a project

What is Requirement ?

- A requirement is something the product must do or a quality it must have.
- A specification of what should be implemented. They are descriptions of how the system should behave, or of a system property or attribute. They may be a constraint on the development process of the system. *(Sommerville and Sawyer 1997)*
- A requirement exists either because the type of product demands certain functions or qualities or because the client wants that requirement to be part of the delivered product.

Why requirement is important? (1)

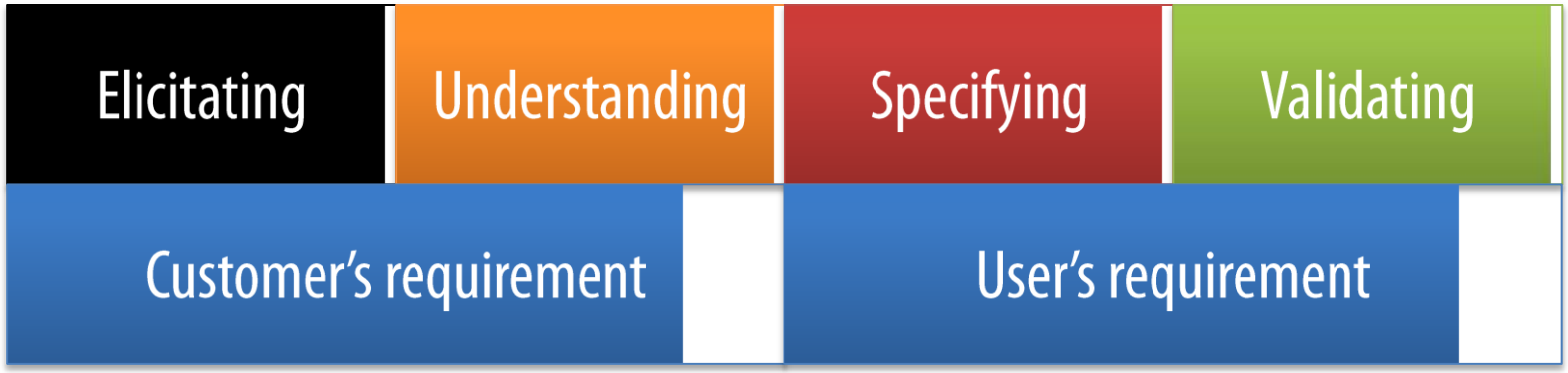
- Identifying (some) **requirements** is the **starting point** for all software development project regardless of the development method being used
- In conventional development, the cost of fixing problems after system delivery is **high** (perhaps 100 times the cost of fixing an implementation error)
- *Changes in requirements are inevitable*
  - As understanding of the requirements develops
  - As the software development proceeds
  - After the system is delivered (maintenance, evolution)

WHAT IS REQUIREMENT ENGINEERING ?

What is requirement engineering?

- **Requirements engineering** is the process of :
  - eliciting,
  - understanding,
  - specifying
  - and validating

  customers' and **users'** **requirements**

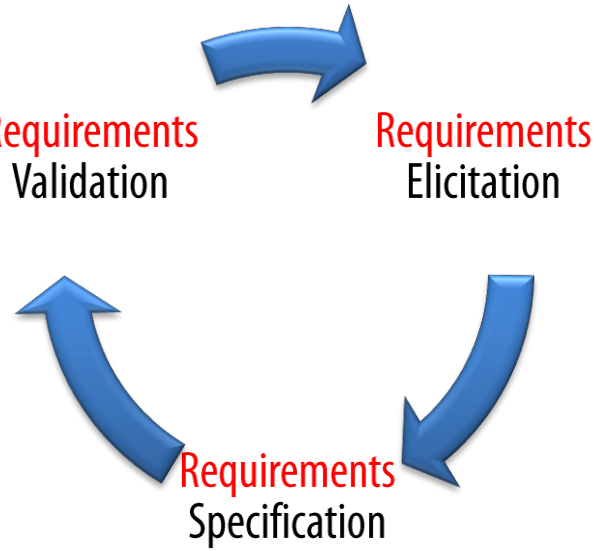


What is requirement engineering?

- **Requirement engineering** identifies technological restrictions under which the application should be constructed and run
- e.g. of technology restriction
  - Customer cannot ask a hard disk with unlimited capacity
  - Big data can impose a time consuming query in relational database
  - Traditional php engine can only process 250 MB data in memory

What is requirement engineering

- It is an **iterative** and **co-operative process** with the
  - **objective** to analyze the problem, to document the results in a variety of formats and evaluate the precision of the results produced



Iterative Process in Requirement Engineering

COURSE PLAN (RP-RENCANA PERKULIAHAN)

Course Objectives

- Provides procedures and analysis techniques and system specifications, development methodology, representation methods, tools and techniques of requirements engineering and be able to document the software requirements specification

Competencies

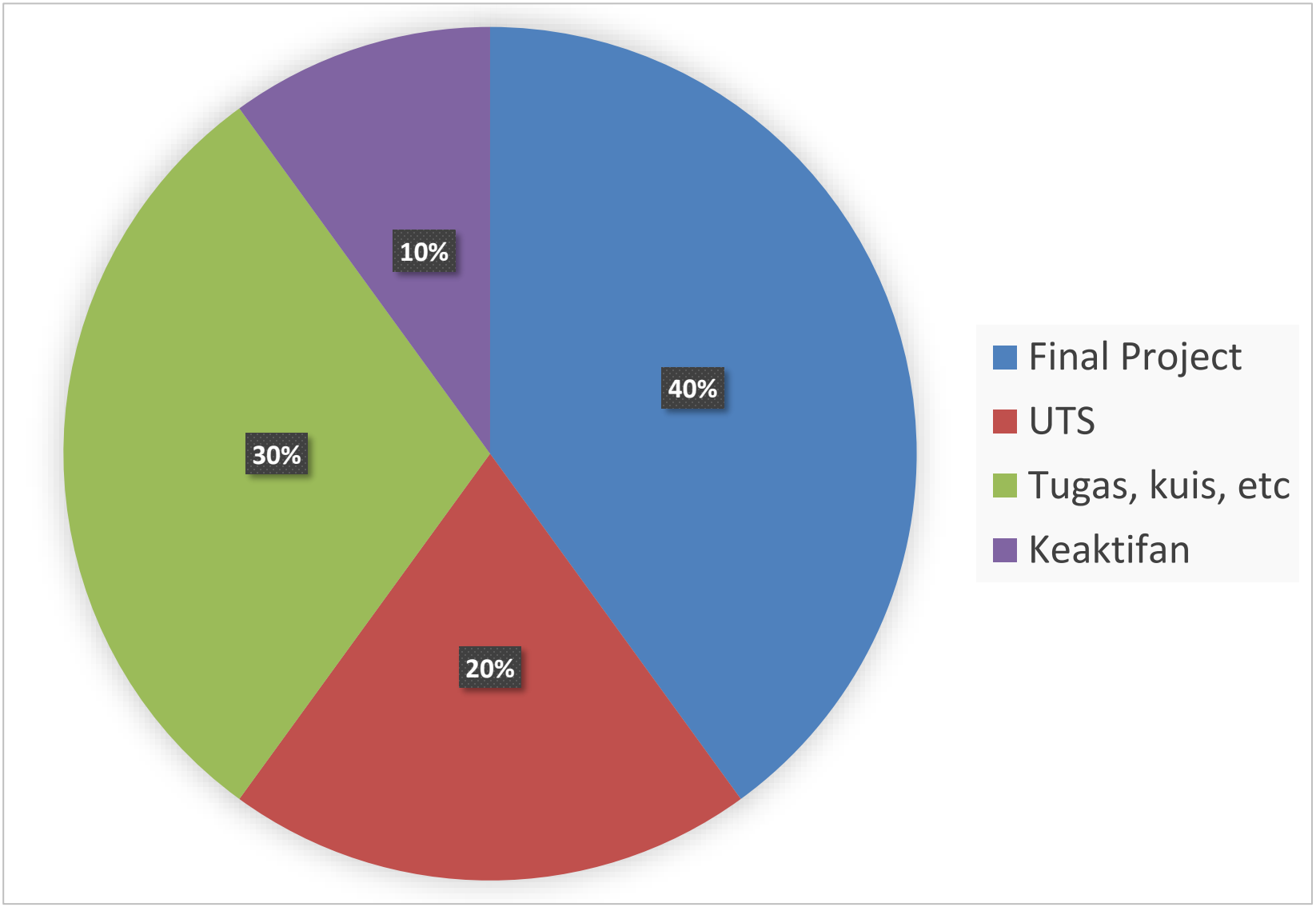
- Students are able to explore software requirements
- Students are able to analyze software requirements
- Students are able to validate the requirements defined in the analysis stage
- Students are able to manage the software requirement
- Students are able to documenting software requirements specification

POKOK BAHASAN atau BAHAN KAJIAN

- **Requirements Engineering (RE) Fundamentals**: konsep dasar dan urgensi merekayasa kebutuhan perangkat lunak pada tahap awal pengembangan perangkat lunak sesuai dengan jenis Software Development Life Cycle (SDLC) yang ditentukan.
- **RE Process**: Proses merekayasa kebutuhan perangkat lunak, mulai dari studi kelayakan hingga validasi kebutuhan perangkat lunak
- **RE Elicitation** dan Teknik-teknik Penggalian Kebutuhan: Konsep RE Elicitation dan pengenalan beberapa teknik penggalian kebutuhan baik teknik tradisional maupun teknik modern
- **RE Technique** and Analysis (FR - NFR): Teknik Analisa Requirement yang meliputi sub bahasan:
    - Functional Requirement dan Non Functional Requirement (FR-NFR)
    - Quality Function Deployment (QFD)
    - Requirements Engineering Methods: A Classification Framework
    - Use Case Diagram (UML) dan User Stories/Scenario
- **RE Validation**: Langkah-langkah memvalidasi requirement
- **Requirements Traceability**: Pengecekan terhadap semua kebutuhan apakah telah dispesifikkan menjadi fungsi-fungsi yang dapat dijalankan melalui pembuatan Requirement Traceability Matrix (RTM)
- **RE Documentation**: Pendokumentasian spesifikasi kebutuhan hasil analisis (well documented), dokumen SRS IEEE std. 830 – 1998
- **RE Management**: Pengelolaan requirement untuk mengantisipasi perubahan kebutuhan yang terlalu sering (change requirement)

ASSIGNMENTS AND MARKING

Assignment and Marking



Class Rules

- Use a formal clothes
- Keterlambatan pengumpulan tugas = minus 10% per day
- Angkat tangan lalu sebutkan nama & NRP ketika hendak bertanya

- **Class representative:**
  - Kelas A: Marcel (081396927857)
  - Kelas B: Bayu (081390339991)

- My contact: WA 081331818454

TASK 1

- Find a real story of project failed in the world.
- Tell the story and mention the causes of the failure in a presentation
- Record the presentation
- This is a group assignment
- Each group consists of 3-4 people
- Choose your own group member by yourself
- Submit the presentation video in the Classroom
- Each student should watch the submission of at least 2 other groups and give comment in the Discussion section (in the Classroom)

TASK 1

- Need an example?
  - Google Project ARA